

## CLAIMS

What is claimed is:

- 1 1. A heatsink assembly, comprising:  
2 a first plate;  
3 a folded fin member disposed on a first surface of said first plate;  
4 a second plate disposed over and in thermal contact with said folded fin member;  
5 and  
6 a gas flow device disposed proximate said folded fin member.
- 1 2. The heat sink assembly of claim 1 further comprising a slug disposed on the first  
2 surface of said first plate and surrounded by said folded fin member, said slug in thermal  
3 communication with said folded fin member.
- 1 3. The heat sink assembly of claim 1 wherein at least one of said first plate and said  
2 second plate are adapted for mounting to said gas flow device.
- 1 4. The heat sink assembly of claim 1 wherein at least one of said first plate and said  
2 second plate are comprised of a thermally conductive material.
- 1 5. The heat sink assembly of claim 4 wherein said thermally selected material is  
2 selected from the group including aluminum, copper, brass, a zinc-aluminum die cast,  
3 and a zinc alloy material.
- 1 6. The heat sink assembly of claim 2 wherein said slug is comprised of a thermally  
2 conductive material.
- 1 7. The heat sink assembly of claim 2 further comprising a thermal interface material  
2 disposed on at least one surface of said slug.

1 8. The heat sink assembly of claim 7 wherein said thermoelectric material is selected  
2 from the group consisting of a thermoelectric material and a thermoionic material.

1 9. The heatsink assembly of claim 2 wherein said slug is disposed in a generally  
2 non-vertical position.

1 10. The heatsink assembly of claim 1 wherein said folded fin member includes a  
2 portion disposed in a generally non-vertical position.

1 11. The heatsink assembly of claim 1 wherein said folded fin member includes at  
2 least one section disposed at a different height than another section.

1 12. The heat sink assembly of claim 1 wherein said folded fin member is comprised  
2 of one or more pieces.

1 13. A heatsink assembly, comprising:  
2 a folded fin member having a first end adapted to be disposed proximate a heat source  
3 and a second end, said folded fin member including a thermally conductive sheet having  
4 alternating ridges and troughs defining spaced fins having opposite end edges and  
5 wherein the fins are provided having at least one aperture in a side wall thereof.

1 14. The heatsink assembly of claim 13 further comprising a slug coupled to said  
2 folded fin member.

1 15. The heatsink assembly of claim 13 wherein at least one of the fin end edges at the  
2 second end of the heat exchanging section is closed.

1 16. The heatsink assembly of claim 13 wherein at least one of the trough end edges at  
2 the first end of said folded fin member is closed.

- 1 17. The heatsink assembly of claim 13 further comprising a gas supply source  
2 disposed proximate a second end of said folded fin member.
- 1 18. The heatsink assembly of claim 13 wherein a side edge of a fin includes at least  
2 one aperture.
- 1 19. The heatsink assembly of claim 13 wherein material which was where said  
2 aperture is provided is completely removed from said sidewall.
- 1 20. The heatsink assembly of claim 13 wherein material which was where said  
2 aperture is provided extends from said sidewall.
- 1 21. The heat sink assembly of claim 13 wherein said folded fin member is comprised  
2 of material selected from the group including aluminum, copper, brass, a zinc-aluminum  
3 die cast, and a zinc alloy material.
- 1 22. The heat sink assembly of claim 14 wherein said slug is comprised of material  
2 selected from the group including aluminum, copper, brass, a zinc-aluminum die cast,  
3 and a zinc alloy material.
- 1 23. The heat sink assembly of claim 14 further comprising a thermal interface  
2 material disposed on at least one surface of said slug.
- 1 24. The heat sink assembly of claim 23 wherein said thermoelectric material is  
2 selected from the group consisting of a thermoelectric material and a thermoionic  
3 material.
- 1 25. The heatsink assembly of claim 14 wherein said slug is disposed in a generally  
2 non-vertical position.

- 1 26. The heatsink assembly of claim 13 wherein said folded fin member includes a  
2 portion disposed in a generally non-vertical position.
- 1 27. The heatsink assembly of claim 13 wherein said folded fin member includes at  
2 least one section disposed at a different height than another section.
- 1 28. A method of producing a folded fin heatsink member comprising:  
2 providing a plurality of holes in a piece of material;  
3 aligning said piece of material;  
4 punching a fold into said piece of material;  
5 retracting the folded fin; and  
6 separating the folded fin from the remaining material.
- 1 29. The method of claim 28 wherein said aligning comprises locating an index hole in  
2 said material and using said index hole as a reference point.
- 1 30. The method of claim 29 wherein said aligning further comprises aligning said  
2 material between a stripper plate and an upper die.
- 1 31. The method of claim 28 wherein said punching includes lowering an upper die to  
2 be adjacent the material.
- 1 32. The method of claim 31 wherein said punching includes raising a die block and  
2 fin forming punch.
- 1 33. The method of claim 32 wherein said punching further comprises punching said  
2 fold into a cavity of said upper die.
- 1 34. The method of claim 33 wherein said punching further comprises lowering said  
2 die block and fin forming punch.

1 35. The method of claim 34 wherein said punching further comprises raising the  
2 upper die.

1 36. An apparatus for producing a folded fin heatsink member comprising:  
2 an upper die;  
3 a pilot pin movably disposed within said upper die;  
4 a stripper plate disposed below said upper die, said stripper plate capable of  
5 supporting a piece of material to be formed into a folded fin heatsink member;  
6 a die block disposed beneath said stripper plate; and  
7 a forming punch extending from said die block.

1 37. The apparatus of claim 36 further comprising a recess formed in said upper die.

1 38. The apparatus of claim 37 wherein said upper die movable between a first upper  
2 die position and a second upper die position.

1 39. The apparatus of claim 37 wherein said stripper plate includes an aperture  
2 disposed therethrough.

1 40. The apparatus of claim 36 wherein said die block is movable between a first die  
2 block position and a second die block position.

1 41. The apparatus of claim 39 wherein said forming punch is movable through said  
2 aperture in said stripper plate and into said recess of said upper die.